Appl. No. 09/885,499
Amdt. Dated June 8, 2004
Reply to Office Action of January 28, 2004

Attorney Docket No. 83336.0001
Customer No.: 26021

REMARKS/ARGUMENTS

In response to the Office Action dated January 28, 2004, claims 1 and 9 are amended, and claims 14-20 are canceled without prejudice, waiver, or disclaimer to the subject matter contained therein. Claims 21-27 have been added. Claims 1-13 and 21-27 remain in the application. It is not the Applicants' intent to surrender any equivalents because of the amendments or arguments made herein. Reexamination and reconsideration of the application, as amended, are respectfully requested.

Art-Based Rejections

On pages 2-8 of the Office Action, claims 1-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Uemura et al., USPN 5,720,026. The Applicant respectfully traverses the rejections, however, in order to expedite prosecution, the Applicants have amended the claims. The Applicants respectfully submit that the claims are patentable in light of the amendments above and the arguments below.

The Uemura Reference

The Uemura reference discloses an incremental backup system. Whenever incremental backup is performed, a new backup generation number is given to the backup. When full backup is executed, generation number 0 is given to the backup. Then, when data is updated in the disk unit or logical disk unit, the next backup generation 1 is stored in the difference map information 600 storing data indicating whether or not the block is updated. When incremental backup is executed, data in the block with backup generation 1 registered in the difference map information 600 is saved. After the completion of the incremental backup, when data is furthermore

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updated in the disk unit, backup generation 2 is registered in the difference map information 600 storing data indicating whether or not the block is updated. See Col. 5, lines 21-33.

The Claims are Patentable over the Cited Reference

The claims of the present invention describe a backup system which is installed in a computer system having a first type data and a second type data stored therein. A system in accordance with the present invention comprises a selecting module for selecting a first predetermined mode in accordance with said first type data and selecting a second predetermined mode in accordance with said second type data, and a processing module coupled to said selecting module for processing said first type data and said second type data, wherein said processing module backs up valid data being changed within said first type data while said first predetermined mode is selected by said selecting module, and said processing module backs up all valid data within said second type data while said second predetermined mode is selected by said selecting module, said first type data and said second type data being backed up prior to being changed.

The cited reference does not teach nor suggest the limitations of the claims of the present invention. Specifically, the cited references does not teach nor suggest the limitation of said first type data and said second type data being backed up prior to being changed as recited in the claims of the present invention.

Uemura provides an incremental backup system which can back up updated blocks on disk over generations. The incremental backup system stores all of the data stored in the storage unit in the backup unit and updates the backup generations after the backup data is stored. When incremental backup is executed, data in the block with backup generation 1 registered in the difference map

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information is saved. After the completion of the incremental backup, when data is furthermore updated in the disk unit, backup generation 2 is registered in the difference map information storing data indicating whether or not the block is updated. Hence, if the data in one of the blocks is updated, the incremental backup is performed. See Col. 5, lines 21-33.

However, Uemura does not take into consideration the backup operation prior to making changes to the data in a data storage means. If the full backup is executed, generation number 0 is given to the backup. Then, when data is updated in the disk unit, the next backup generation 1 is stored in the difference map information storing data indicating whether or not the block is updated. In other words, Uemura fails to backup the prior data fully beforehand. This would likely induce the original data to be destroyed. As a result, it would be almost impossible to restore the hard disk with complete original data for that has probably been destroyed owing to any unexpected accident occurred in the disk writing operation.

In contrast, the present invention establishes recovery points for storing data in the computer system by backing up the prior data on the hard disk. Moreover, the application provides a notion of how to solve the problem of destroyed newly backed-up data, but also solves the problem of incapable reconstruction. The backup file may contain the backup data and identification information to identify the backup data. Such identification information is useful restoring the computer system in the future.

The present invention has the advantage of providing a long protective period and a high recovery precision to the backup data. The dynamic recovery points and the static recovery points can share data backup space in a storage means proportionally. The storage proportion of the dynamic backup space with respect to

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the static backup space is automatically adjustable based on the needs of the users or the condition of the data to be backed up.

Further, the present invention can prolong the time period in protecting computer data of identical backup space conditions. Moreover, the amount of states of protected computer data is increased within identical duration. The backup space is concealed from the users, so as to prevent purposeful or involuntary violence to the backup data, in order to substantially raise the reliability.

The present invention places backup data in independent backup space so that the special purpose partition can effectively solve the storage shortage problem of the recovery points faced by the conventional backup/recovery software. The prior data will not be destroyed due to any unexpected accident occurred in the disk writing operation, so as to ensure the restoration of the computer system to a working state. Also, the backup data won't be destroyed due to the shared storage partition that can be accessed by other programs. Hence, the present invention can entirely avoid the shortcoming that the computer system cannot be restored to a normal state.

The present invention can protect much larger amount of states of computer data when such computer data is increased within the same duration and space. The data can be protected timelessly within a certain backup space. Hence, the present invention not only can protect a higher amount of states of the computer data but also can protect the data longer.

The conventional backup/recovery techniques described in Uemura do not overcome these deficiencies of the waste of data storage space and long consuming time during the backup and restoration, nor does Uemura teach nor suggest the limitation of the first type data and said second type data being backed up prior to being changed as recited in the claims of the present invention.

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Moreover, Uemura has an additional deficiency of ease of destroying data owing to any unexpected accident occurred in the disk writing operation. Neither Uemura nor any other reference would either suggest or render obvious the claims of the present application. Accordingly, reconsideration and withdrawal of the 35 USC 102(b) rejection is respectfully requested.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time. The Applicants reserve the right to present additional arguments at a later date should those arguments be deemed necessary.

Thus, it is submitted that independent claims 1, 9, and 22 are patentable over the cited reference. Claims 2-8, 10-13, 21, and 23-27 are also patentable over the cited reference, not only because they contain all of the limitations of the independent claims, but because claims 2-8, 10-13, 21, and 23-27 also describe additional novel elements and features that are not described in the prior art.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6742 to discuss the steps necessary for placing the application in condition for allowance.

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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: June 8, 2004

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